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## Search History

(FILE 'HOME' ENTERED AT 09:34:38 ON 13 MAR 2006)

FILE 'HCAPLUS, INSPEC, JAPIO, USPATFULL, USPAT2, INPADOC' ENTERED AT  
09:35:14 ON 13 MAR 2006

L1 544003 S (SINGLE OR MONO) (10A) (CRYSTAL?)  
L2 34095 S (SUPERALLOY#)  
L3 663364 S (HIGH? (4A) POWER# OR HIGH?) (8A) (ENERG?)  
L4 7038 S (PREHEAT?) (8A) (MELT# OR LIQUID#)  
L5 3406730 S (SOLID#)  
L6 494583 S (FILLER#)

=> s l1 and l2 and l3 and l4 and l5 and l6

L7 1 L1 AND L2 AND L3 AND L4 AND L5 AND L6

=> d l7 abs,bib

L7 ANSWER 1 OF 1 USPATFULL on STN

AB Methods for repair of **single crystal**  
**superalloys** by laser welding and products thereof have been  
disclosed. The laser welding process may be hand held or automated.  
Laser types include: CO.sub.2, Nd:YAG, diode and fiber lasers.  
Parameters for operating the laser process are disclosed. **Filler**  
materials, which may be either wire or powder **superalloys** are  
used to weld at least one portion of a **single crystal**  
**superalloy** substrate.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

AN 2005:141214 USPATFULL

TI Methods for repair of **single crystal**  
**superalloys** by laser welding and products thereof

IN Hu, Yiping, Greer, SC, UNITED STATES  
Hehmann, William F., Greer, SC, UNITED STATES  
Madhava, Murali, Gilbert, AZ, UNITED STATES

PI US 2005120941 A1 20050609

AI US 2003-728543 A1 20031204 (10)

DT Utility

FS APPLICATION

LREP Honeywell International Inc., 101 Columbia Rd., P. O. Box 2245,  
Morristown, NJ, 07962-9806, US

CLMN Number of Claims: 33

ECL Exemplary Claim: 1

DRWN 3 Drawing Page(s)

LN.CNT 578

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

Int# Jiten J. Mlachak  
Tel# (603) 262-5355  
Fax# (603) 734-3888

44/728, 543

### Examiner's Notes

9 (single or mono) (10a) (crystal?)  
15 (superalloy?)  
45 (high? low? power or high?) (8a) (energy?)  
45 (pre-heat?) (8a) (melt#)  
45 (solid#)  
5 (filler#)

### 112P2 Rej:

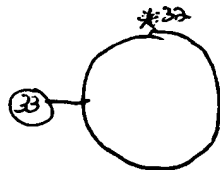
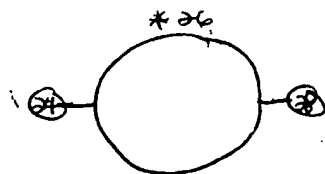
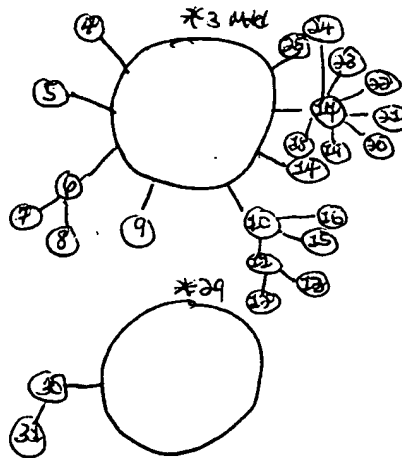
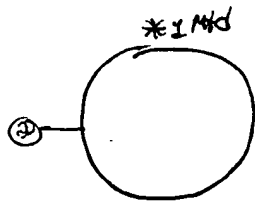
Claim 7, lines 6-7, "... RENE' NS and N6..." (Trademark Cite)

Claim 6, lines 16-17, "... HASTELLOY X, INCO 743..." (Trademark Cite)

Claim 32, lines 15, 16, 22-23 "... SC 180, RENE' NS ... MAR-M247..." (TRADEMARK CITE)

### Allowable Subject Matter:

Claims 32 and 33 are allowed



103 Rej:  
Claims 1-31

Search History

STN  
(HEARUS, JPRD, USPTAU, INPADOC, LAXPEC)  
3/13/2006

=> d-18 1-4 abs, bib

L8 ANSWER 1 OF 4 USPATFULL on STN  
AB Methods for repair of single crystal  
superalloys by laser welding and products thereof have been  
disclosed. The laser welding process may be hand held or automated.  
Laser types include: CO.sub.2, Nd:YAG, diode and fiber lasers.  
Parameters for operating the laser process are disclosed. Filler  
materials, which may be either wire or powder superalloys are  
used to weld at least one portion of a single crystal  
superalloy substrate.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

AN 2005:141214 USPATFULL  
TI Methods for repair of single crystal  
superalloys by laser welding and products thereof  
IN Hu, Yiping, Greer, SC, UNITED STATES  
Hermann, William F., Greer, SC, UNITED STATES  
Madhava, Murali, Gilbert, AZ, UNITED STATES  
PI US 2005120941 A1 20050609  
AI US 2003-728543 A1 20031204 (10)  
DT Utility  
FS APPLICATION  
LREP Honeywell International Inc., 101 Columbia Rd., P. O. Box 2245,  
Morristown, NJ, 07962-9806, US  
CLMN Number of Claims: 33  
ECL Exemplary Claim: 1  
DRWN 3 Drawing Page(s)  
LN.CNT 578

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L8 ANSWER 2 OF 4 USPATFULL on STN  
AB A thermally diluted exothermic reactor system is comprised of numerous  
orifices distributed within a combustor by distributed perforated  
contactor tubes or ducts. The perforated contactors deliver and mix  
diluent fluid and one or more reactant fluids with an oxidant fluid.  
Numerous micro-jets about the perforated tubes deliver, mix and control  
the composition of reactant fluid, oxidant fluid and diluent fluid. The  
reactor controls one or more of composition profiles, composition ratio  
profiles and temperature profiles in one or more of the axial direction  
and one or two transverse directions, reduces temperature gradients and  
improves power, efficiency and emissions.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

AN 2004:279779 USPATFULL  
TI Trifluid reactor  
IN Hagen, David L., Goshen, IN, UNITED STATES  
Ginter, Gary, Chicago, IL, UNITED STATES  
Goheen, Bill, Goshen, IN, UNITED STATES  
McGuire, Allan, Elkhart, IN, UNITED STATES  
Rankin, Janet, Shawano, WI, UNITED STATES  
PI US 2004219079 A1 20041104  
AI US 2004-763047 A1 20040122 (10)  
PRAI US 2003-442096P 20030122 (60)  
US 2003-442844P 20030124 (60)  
DT Utility  
FS APPLICATION  
LREP KNOBBE MARTENS OLSON & BEAR LLP, 2040 MAIN STREET, FOURTEENTH FLOOR,  
IRVINE, CA, 92614  
CLMN Number of Claims: 84  
ECL Exemplary Claim: 1  
DRWN 31 Drawing Page(s)  
LN.CNT 11328

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L8 ANSWER 3 OF 4 USPATFULL on STN  
AB In a method of making a load-bearing article by spray casting a molten  
metal onto a metal substrate, the substrate surface receiving the spray

cast deposit is treated by vacuum cleaning, boronizing and/or knurling to enhance the structural integrity of the diffusion bond joint subsequently formed between the spray cast deposit and the substrate in sustaining a load across the joint without premature joint failure.

AN 94:48406 USPATFULL  
TI Method of enhancing bond joint structural integrity of spray cast article  
IN Stinson, Jonathan S., Plymouth, MN, United States  
Bowen, Kim E., Whitehall, MI, United States  
PA Howmet Corporation, Greenwich, CT, United States (U.S. corporation)  
PI US 5318217 19940607  
AI US 1991-794320 19911114 (7)  
RLI Continuation of Ser. No. US 1989-452958, filed on 19 Dec 1989, now abandoned  
DT Utility  
FS Granted  
EXNAM Primary Examiner: Nelson, Peter A.  
LREP Flynn, Thiel, Boutell & Tanis  
CLMN Number of Claims: 37  
ECL Exemplary Claim: 1  
DRWN 9 Drawing Figure(s); 4 Drawing Page(s)  
LN.CNT 1283

L8 ANSWER 4 OF 4 USPATFULL on STN  
AB The invention consists of a method of producing a fine equiaxed grain structure (ASTM 2-4) in cast nickel-base **superalloys** which increases low cycle fatigue lives without detrimental effects on stress rupture properties to temperatures as high as 1800° F. These **superalloys** are variations of the basic nickel-chromium matrix, hardened by gamma prime [Ni.sub.3 (Al, Ti)] but with optional additions of cobalt, tungsten, molybdenum, vanadium, columbium, tantalum, boron, zirconium, carbon and hafnium. The invention grain refines these alloys to ASTM 2 to 4 increasing low cycle fatigue life by a factor of 2 to 5 (i.e. life of 700 hours would be increased to 1400 to 3500 hours for a given stress) as a result of the addition of 0.01% to 0.2% of a member of the group consisting of boron, zirconium and mixtures thereof to aid heterogeneous nucleation. The alloy is vacuum melted and heated to 250°-400° F. above the melting temperature, cooled to partial solidification, thus resulting in said heterogeneous nucleation and fine grains, then reheated and cast at about 50°-100° F. of superheat. Additions of 0.1% boron and 0.1% zirconium (optional) are the preferred nucleating agents.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

AN 78:13981 USPATFULL  
TI Method of improving fatigue life of cast nickel based **superalloys** and composition  
IN Denzine, Allen F., Chardon, OH, United States  
Kolakowski, Thomas A., Cleveland, OH, United States  
Wallace, John F., Shaker Heights, OH, United States  
PA University Patents, Inc., Stamford, CT, United States (U.S. corporation)  
PI US 4078951 19780314  
AI US 1976-672350 19760331 (5)  
DT Utility  
FS Granted  
EXNAM Primary Examiner: Dean, R.  
LREP Fay & Sharpe  
CLMN Number of Claims: 16  
ECL Exemplary Claim: 13  
DRWN No Drawings  
LN.CNT 1320

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

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L4 7038 S (PREHEAT?) (8A) (MELT# OR LIQUID#)  
L5 3406730 S (SOLID#)  
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L8 4 S L1 AND L2 AND L3 AND L4

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